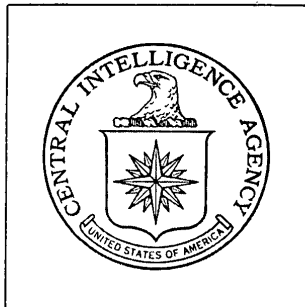


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DIRECTORATE OF
INTELLIGENCE

**Industrial Facilities
(Non-Military)**

Basic Imagery Interpretation Report

Nampo Copper and Zinc Plant

Nampo, North Korea

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Directorate of Intelligence
Imagery Analysis Service

INSTALLATION OR ACTIVITY NAME					COUNTRY	
Nampo Copper and Zinc Plant					KN	
UTM COORDINATES	GEOGRAPHIC COORDINATES	CATEGORY	BE NUMBER	COMIREX NO.	NIETB NO.	
51SYC113895	38-44-02N 125-25-57E			None		25X1 25X1
MAP REFERENCE						
USNOO. USATC. Series 200. Sheet M0380-7HL. 4th ed.. Nov 68. Scale 1:200,000						
(SECRET)						
LATEST IMAGERY USED			NEGATION DATE (If required)			
			NA			

ABSTRACT

A detailed photographic analysis of the Nampo Copper and Zinc Plant in North Korea shows that the plant has facilities for the smelting of copper ore, the electrolytic production of zinc and refining of copper, the recovery of precious metals, and the production of sulfuric acid as a by-product. It also contains a large nonferrous metals fabrication facility with three rolling mills.

The plant was in operation in May 1963 when it was first covered on overhead photography. Two phases of major expansion of facilities have been noted on photography: the third rolling mill was constructed between 1963 and 1966, and the zinc production facility was expanded in 1968. This expansion greatly increased the capacity at both facilities. All major production facilities at the plant appeared to be in operation on all photography from May 1963 to August 1969.

This report includes a photograph and a detailed line drawing of the plant, and a chronological summary of construction and operational status.

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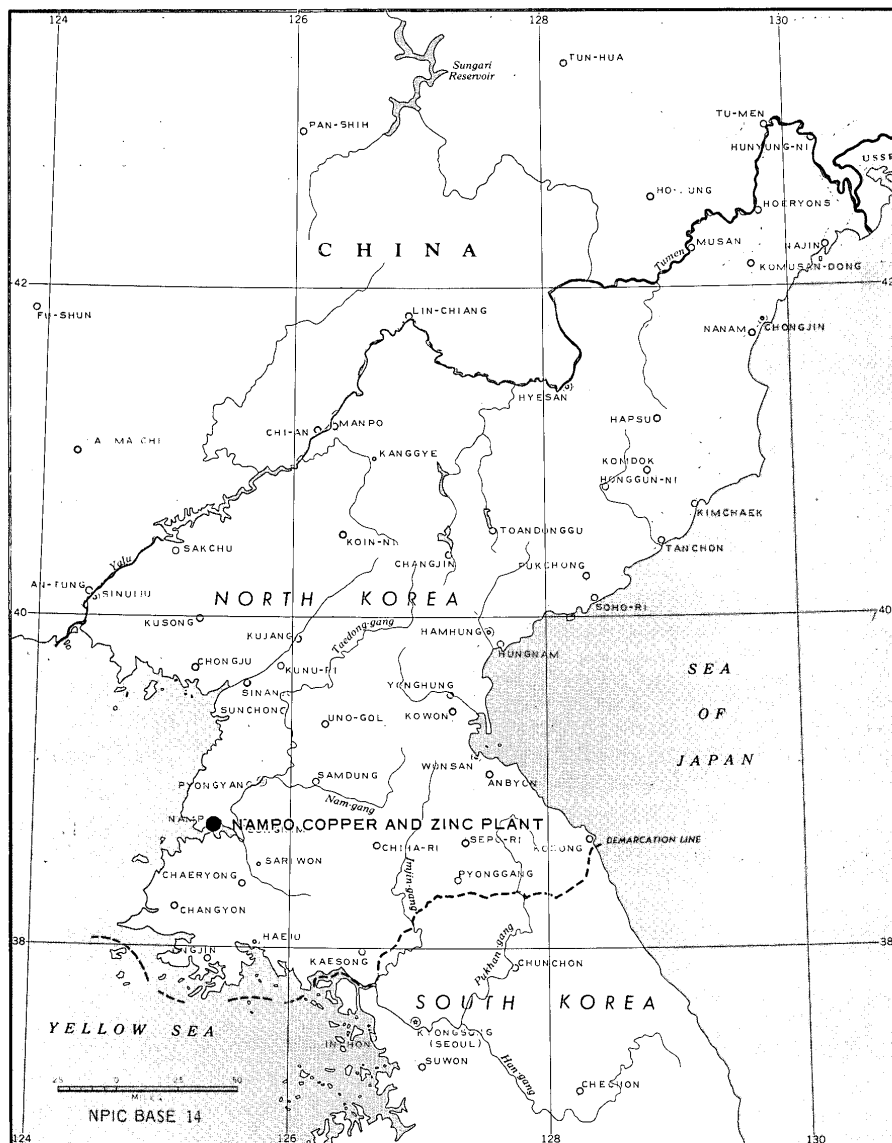


FIGURE 1. LOCATION MAP.

INTRODUCTION

The Nampo Copper and Zinc Plant is in the eastern suburbs of Nampo, Pyongan-namdo Province, North Korea (see Figure 1). It is probably the major producer of blister copper in North Korea. The zinc production facility at this plant is smaller than that of the Munchon Nonferrous Metals Plant. The copper and zinc ores are brought to the plant by rail from the nearby mines. Electric power is supplied from the regional grid serving the town of Nampo.

A phosphate fertilizer plant is collocated with the copper and zinc plant.

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BASIC DESCRIPTION

Physical Features

The plant occupies a rectangular area approximately 4,200 by 4,000 feet which contains about 385 acres (see Figures 2 and 3). Only the western boundary of the plant is secured by a wall. A stream forms a natural boundary along the north, east, and south sides of the plant. Except for the copper smelter, which is on a small hill in the southern part of the plant, the production facilities are in flat-lying areas. There is ample space in the northern part of the plant area for expansion of the facilities.

The plant is served by a rail spur from the main rail line between Pyongyang and Nampo.

Operational Functions

The major plant facilities are a zinc production facility, a copper smelter and refinery, a sulfuric acid production facility, precious metals recovery units, and a large nonferrous metals fabrication facility (see Figure 3).

The zinc sulfide ore is brought by rail to Area B where it is roasted, leached, and then refined by the electrolytic process. The gases driven off during roasting are used for the production of sulfuric acid by the contact process in Area C. The sulfuric acid is used in the leaching and in the electrolyte solution.

The copper sulfide ore is brought by rail to Area A where it is crushed, roasted, and then smelted in blast furnaces to form copper matte. The molten matte is piped into converters where blister copper is produced by inducing air. The blister copper is then cast into anodes and sent to the electrolytic cell building in Area D for further refining.

Precious metals such as gold and silver are recovered as by-products from the electrolytic cell buildings and are refined in Area D. Cadmium is reportedly recovered as a by-product at this plant. ^{2/} The cadmium is probably obtained in the recovery plant (item 23) in Area B. The copper and zinc produced at the plant are probably fabricated into commercial products such as wire and pipes in Area E.

Construction Chronology

The plant has been covered on overhead photography since May 1963. It is known, however, that major portions of the zinc production facility, the copper smelter and refinery, the precious metals recovery facilities, and the sulfuric acid facility were complete and operational in 1958, and construction of the fabrication facility was started prior to 1958. ^{2/}

Since the plant was first observed a third rolling mill has been added and the electrolytic zinc production facility has been expanded. Numerous support buildings were also constructed after 1963. The chronology of construction is shown graphically in Figure 3.

Operational Status

All of the existing facilities appeared to be in operation in May 1963, when the plant was first observed on photography, and on all subsequent photography. Smoke emissions were observed from the large stack associated with the copper smelter on all photography. The presence of rail cars and trucks in the plant and activity within the ore storage areas were also factors utilized in determining the plant's operational status.

The third rolling mill and the expanded portion of the zinc production facility were probably operational shortly after construction was completed.

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Map

USNOO. US Air Target Chart, Series 200, Sheet M0380-7HL, 4th edition, Nov 68,
Scale 1:200,000 (SECRET)

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Documents

1. CIA. RCS 13/0011/70, Munchon Nonferrous Metals Plant, November 1969,
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2. CIA. National Intelligence Survey, NIS 41A, Section 63, December 1961
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Requirement

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